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(56) Documents Cited

**EP 0796631 A2**

**WO 91/12845 A1**

(58) Field of Search

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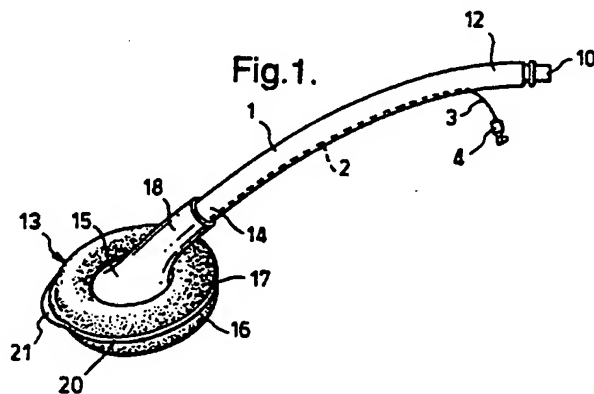
**INT CL<sup>6</sup> A61M 16/00 16/04**

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(54) Abstract Title

**Laryngeal mask assembly**

(57) A laryngeal mask assembly has a mask portion 13 formed by a mount 15 with a plate 20 to which an inflatable cuff 16 and 17 is attached on both sides. The plate 20 projects beyond the cuffs to form a leading tip 21 to aid insertion of the assembly into the patient.



GB 2 323 292 A

Fig.1.

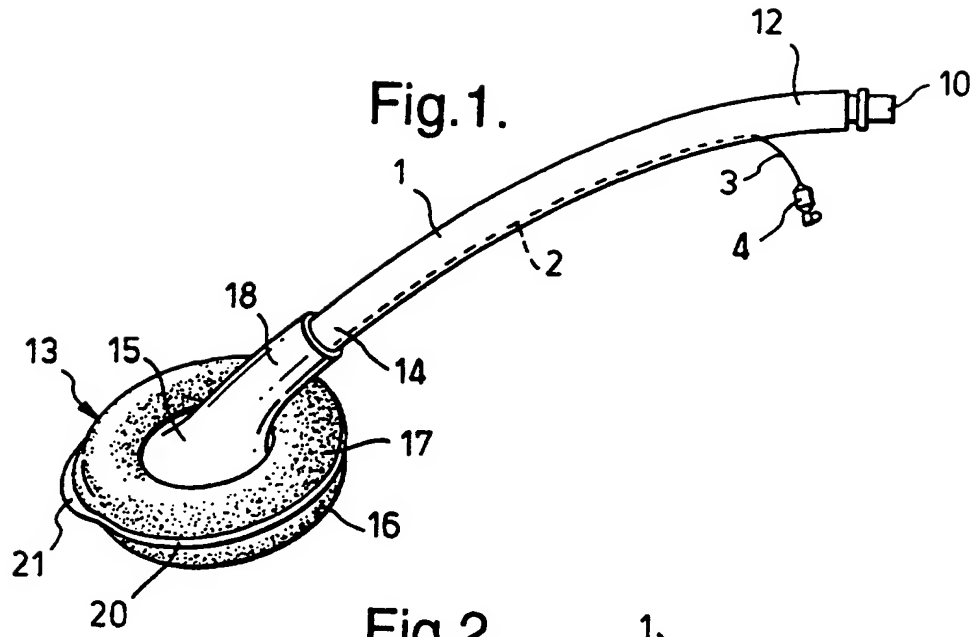


Fig.2.

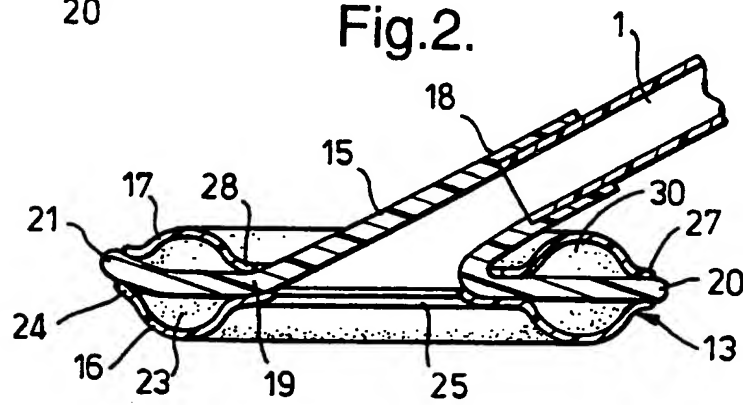
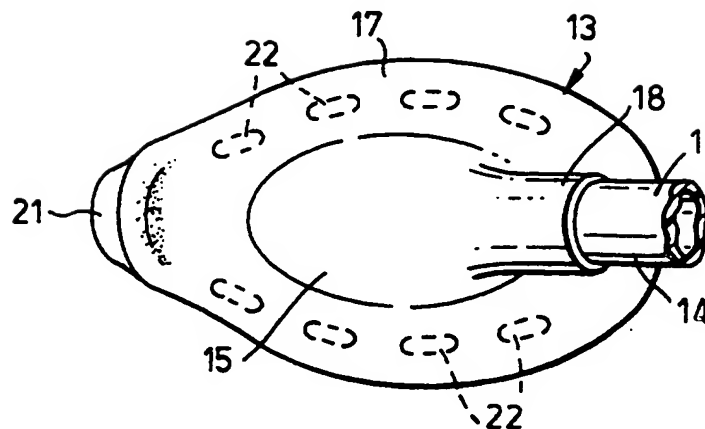


Fig.3.



### Laryngeal Mask Assemblies

This invention relates to laryngeal mask assemblies

It is common practice to use an airway known as a laryngeal mask for the administration of anaesthetic and ventilation gases to a patient. These airways comprise a tube with an inflatable mask or cuff at one end, the tube being inserted in the patient's mouth so that one end is located in the hypopharynx and so that the mask forms a seal in this region with the surrounding tissue. Laryngeal masks are described in, for example, US 5355879, US 5305743, US 5297547, US 5282464, GB 2267034, US 5249571, US 5241956, US 5303697, GB 2249959, GB 2111394, EP 448878, US 4995388, GB 2205499, GB 2128561 and GB22988797.

Laryngeal masks have several advantages over endotracheal tubes, which are longer and seal with the trachea below the vocal folds. One problem with laryngeal mask airways, however, is that it is difficult they can be difficult to introduce correctly, especially by an inexperienced user.

It is an object of the present invention to provide an improved laryngeal mask assembly.

According to the present invention there is provided a laryngeal mask assembly comprising a tube with a mask portion at its patient end, the tube opening into the centre of the mask portion and the mask portion having an inflatable cuff member of generally oval shape for providing a seal with patient tissue in the region of the hypopharynx, the mask portion including a tip member projecting beyond the cuff member to aid insertion of the assembly.

The mask portion preferably comprises a mount member attached with the patient end of the tube, the cuff member being attached with the mount member and the tip member being provided by a part of the mount member. The mount member preferably comprises a sleeve attached with the tube and a plate member projecting at an angle to the sleeve, the tip member being provided by a part of the plate member. The tip member may be provided by a curved up leading edge of the plate member. The assembly preferably includes two cuff members attached to opposite sides of the mount member.

A laryngeal mask airway assembly according to the present invention, will now be described, by way of example, with reference to the accompanying drawing, in which:

Figure 1 is a side elevation view of the assembly;

Figure 2 is a sectional side elevation view of the patient end of the assembly to an enlarged scale; and

Figure 3 is a view from above of the patient end of the assembly.

The assembly comprises a bendable tube 1 of a plastics material, such as PVC, with a coupling 10 at its machine end 12. The tube 1 is curved along its length and has a mask portion 13 at its patient end 14.

The tube 1 is extruded with an inflation lumen 2 within its wall. The lumen 2 is connected towards the machine end of the assembly to an inflation line 3 with an inflation indicator and connector 4. The opposite, patient end of the inflation lumen 2 opens into the mask portion 13.

The mask portion 13 comprises a mount member 15 and two cuff members 16 and 17. The mount member 15 is moulded from a bendable plastics material, such as PVC. The mount member 15 has a hollow cylindrical sleeve 18 at its rear end, in which the forward, patient end 14 of the tube 1 is inserted and joined. The forward, patient end 19 of the mount member 15 has a substantially flat plate 20 with a generally elliptical or egg-shape outline, which projects outwardly of the sleeve 18 at an angle of about 30°. The forward edge of the plate 20 is curved upwardly to form a leading tip 21. Several air vent holes 22 are spaced around the plate 20 and allow air to flow through the thickness of the plate.

The cuff members 16 and 17 are both blow moulded from a flexible, resilient plastics material, such as PVC, polyurethane, silicone, EVA, TPE, polyether block amide or the like. The cuff members could be formed in other ways, such as by vacuum forming, pressure vacuum forming or injection moulding. Alternatively, the cuff members could be flat sheets, which might have elastomeric properties or be laminates with reinforcing. The lower, patient-end cuff member 16 has a semi-annular shape with a periphery conforming to the outline of the plate 20. An annular recess or channel 23 extends around the upper surface of the cuff, within a peripheral rim 24. In the centre of the cuff member 16 there is an aperture 25 of oval shape, which conforms to the shape of the opening of the patient end of sleeve 18. The cuff member 16 is bonded to the lower, patient side of the plate 20 both around the rim 24 and around the edge of the aperture 25 to enclose an annular space between the lower surface of the plate and the channel 23. The upper cuff member 17 is similar in shape to the lower cuff member 16 but is arranged upside down. The upper cuff member 17 has a peripheral rim 27 and an inner rim 28 bonded to the upper surface of the plate 20, on either side of an annular channel 30. The upper channel 30 communicates with the inflation lumen 2 by means of a channel in the mount member 15, or an interconnecting tube, so that gas supplied to the inflation lumen inflates the upper cuff member 17 and, because the gas flows through the air vents 22, it also inflates the lower cuff member 16.

The leading tip 21 projects forwardly slightly beyond the upper and lower cuff members 16 and 17 so as to provide a stiffer leading edge to help guide the mask portion 13 into the correct location.

CLAIMS

1. A laryngeal mask assembly comprising a tube with a mask portion at its patient end, the tube opening into the centre of the mask portion and the mask portion having an inflatable cuff member of generally oval shape for providing a seal with patient tissue in the region of the hypopharynx, wherein the mask portion includes a tip member projecting beyond the cuff member to aid insertion of the assembly.
2. A laryngeal mask assembly according to Claim 1, wherein said mask portion comprises a mount member attached with the patient end of the tube, wherein said cuff member is attached with said mount member, and wherein said tip member is provided by a part of said mount member.
3. A laryngeal mask assembly according to Claim 2, wherein said mount member comprises a sleeve attached with said tube and a plate member projecting at an angle to the sleeve, and wherein said tip member is provided by a part of said plate member.
4. A laryngeal mask assembly according to Claim 3, wherein said tip member is provided by a curved up leading edge of the plate member.
5. A laryngeal mask assembly according to any one of Claims 2 to 4, wherein said assembly includes two cuff members attached to opposite sides of said mount member.



Application No: GB 9804764.0  
Claims searched: 1-5

Examiner: Peter Davey  
Date of search: 18 May 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): A5R (RGEX)

Int Cl (Ed.6): A61M 16/00 16/04

Other: Online: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	WO 91/12845 A1 (SMITHS), see eg. Fig. 1	1 at least
P,X	EP 0796631 A2 (BRAIN), 24 September 1997, see eg. Figs. 2-4	1 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.